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Short Communication

The Discovery of *Myriophyllum oguraense* Miki (Haloragaceae) in China

DAN YU[1*], DONG WANG[1], ZHONG-QIANG LI[1] and ZHEN-YU LI[2]

[1]*Department of Botany, College of Life Sciences, Wuhan University, Wuhan 430072, P. R. China;* [2]*Laboratory of Systematic and Evolutionary Botany, Institute of Botany, the Chinese Academy of Sciences, Beijing 100093, P. R. China*

Myriophyllum oguraense Miki, described in 1934 and hitherto regarded as a Japanese endemic, has been found to occur widely as a native plant in China. The discovery of this taxon in China shows that *M. oguraense* occurs more widely in eastern Asia and falls within the Sino-Japanese distribution pattern.

Key words: China, distribution pattern, Haloragaceae, *Myriophyllum oguraense*.

Extensive field collections and the study of herbarium specimens have resulted in the addition of several species of *Myriophyllum* L. to the flora of China (Li & Hsieh 1996, Yu *et al.* 2001, Wang *et al.* 2002). Recently, while conducting fieldwork in the Chang Jiang River basin, we found another overlooked species of *Myriophyllum* in China that proved to be *M. oguraense* Miki, as shown by its glaucous emergent leaves and long cylindrical turions characteristic of the species. The discovery of the species in the wild has led us to re-examine specimens deposited in Chinese herbaria. Consequently, we found that several specimens previously assigned to *M. verticillatum* L. are *M. oguraense*. From herbarium specimens available, we found that the earliest Chinese specimen of this species dates back to 1933, when it was collected by a Japanese botanist in Jiangsu Province, eastern China. A number of Chinese botanists also collected this species in the lower Yangtze valley and in northeast China. Due to the incorrect identification of *M. oguraense* in China in the past, it has been overlooked. The abundance of the species in China needs to be further investigated. According to Kadono (1994), populations of *M. oguraense* in Japan are potentially threatened by extinction because of the loss and degradation of suitable habitats. *Myriophyllum oguraense* is listed as a threatened species in Japan by the Environmental Agency of Japan (2000). In this note we briefly comment on this species, especially on its habitat, ecology and distribution pattern.

Many Japanese botanists regarded *Myriophyllum oguraense* as endemic to Japan (Miki 1934, 1937, Hara 1954, Ohwi 1953, 1975, Iwatsuki 1992, Ohwi & Kitagawa 1992), while Kadono (1994) believed that it required further study. Kadono (1994) also expressed some concern that the species might be extant elsewhere. Specimens from China show that *M. oguraense* occurs rather widely in northeast China and in the Chang Jiang River basin (Fig.2). From the specimens it appears that *M. oguraense* is confined to eastern Asia and has a Sino-Japanese distribution pattern.

Representative specimens examined in China.

Northeast China. HEILONGJIANG: Ningan, Jingbohu

* Corresponding author. *yudan01@public.wh.hb.cn*

FIG. 1. *Myriophyllum oguraense* Miki in nature. A. terrestrial plants; B. plants in water.

Lake, July 18, 1990, *D. Yu 907101 & 907102* (WH); Haerbin, Sifangtai, Aug. 25, 1951, *Skvortzov, B. V. and G. Z. Wang 1170* (PE).

Chang Jiang River basin. ANHUI: Chaocheng, Sep. 22, 1951, *Statio Orientali-Sinensis 3938* (PE); Xuancheng, Nov. 18, 1959, *T. Y. Liu 586* (PE, WH); Dangtu, Aug. 30, 1959, *T. Y. Liou 1018* (PE, WH). HUBEI: Wuhan, Donghu Lake, Oct. 3, 1993, *D. Yu 931010 & 931011* (WH); Shishou, no date, *D. Yu s. n* (WH); Ezhou, May 20, 2001, *D. Wang 699* (WH), Jun. 6, 2001, *D. Wang 700* (WH); Liangzihu Lake, Nov. 11, 2001, *D. Wang 1271* (WH). JIANGSU: Suzhou, May 13, 1933, *H. Migo s.n.* (PE, WH); Xuyi, Sept. 14, 1958, *no collector 21284* (PE); Jintan, Oct. 18, 1956, *M. B. Deng 3654* (PE). JIANGXI: Dongxiang, July 30, 2001, *D. Wang 808* (WH); Shahu Lake, Oct. 24, 2001, *Z. Q. Li & Y. Q. Yang 2001100031* (WH); Banghu Lake, Oct. 26, 2001, *Z. Q. Li & Y. Q. Yang 2001100052* (WH). ZHEJIANG: Quzhou, Oct. 15, 1998, *Y. X. Chong 9810067 & 9810068* (WH); Hangzhou, Hongmiao, Jun. 10, 1957, *no collector 960* (PE).

Myriophyllum oguraense is morphologically similar to *M. verticillatum* in having all emergent leaves whorled and laciniate-pinnatifid to the apex of the spike. It differs in that *M. verticillatum* has green emergent leaves and short clavate turions (Aiken *et al.* 1979, Kadono 1994, Preston & Croft 1997).

Myriophyllum oguraense has an erect spicate inflorescence or sometimes 2-10 lateral inflorescences from the axils of the upper submerged leaves during the late summer. The flowers are unisexual, subtended by two bracteoles. The flowers on the upper portion of the spike are staminate; the lower ones are pistillate. The bracteoles are white, trifid to pectinate and have 2 or 3 pinnae bearing scale hairs in the axils. Both staminate and pistillate flowers have 4 sepals and 4 petals. The staminate flowers have 8 stamens and styles are reduced to 4 vestiges. The pistillate flowers have 4 short styles, are less than 0.4 mm long and have short, fimbriate stigmas. The fruits are short cylindrical mericarps. They are rounded at the base and have two, smooth, longitudial ridges on the dorsal surface. The study of living plants in the field and observations of cultivated plants over a period of four to five years have enabled us to confirm that the characters are constant.

Myriophyllum oguraense grows typically in

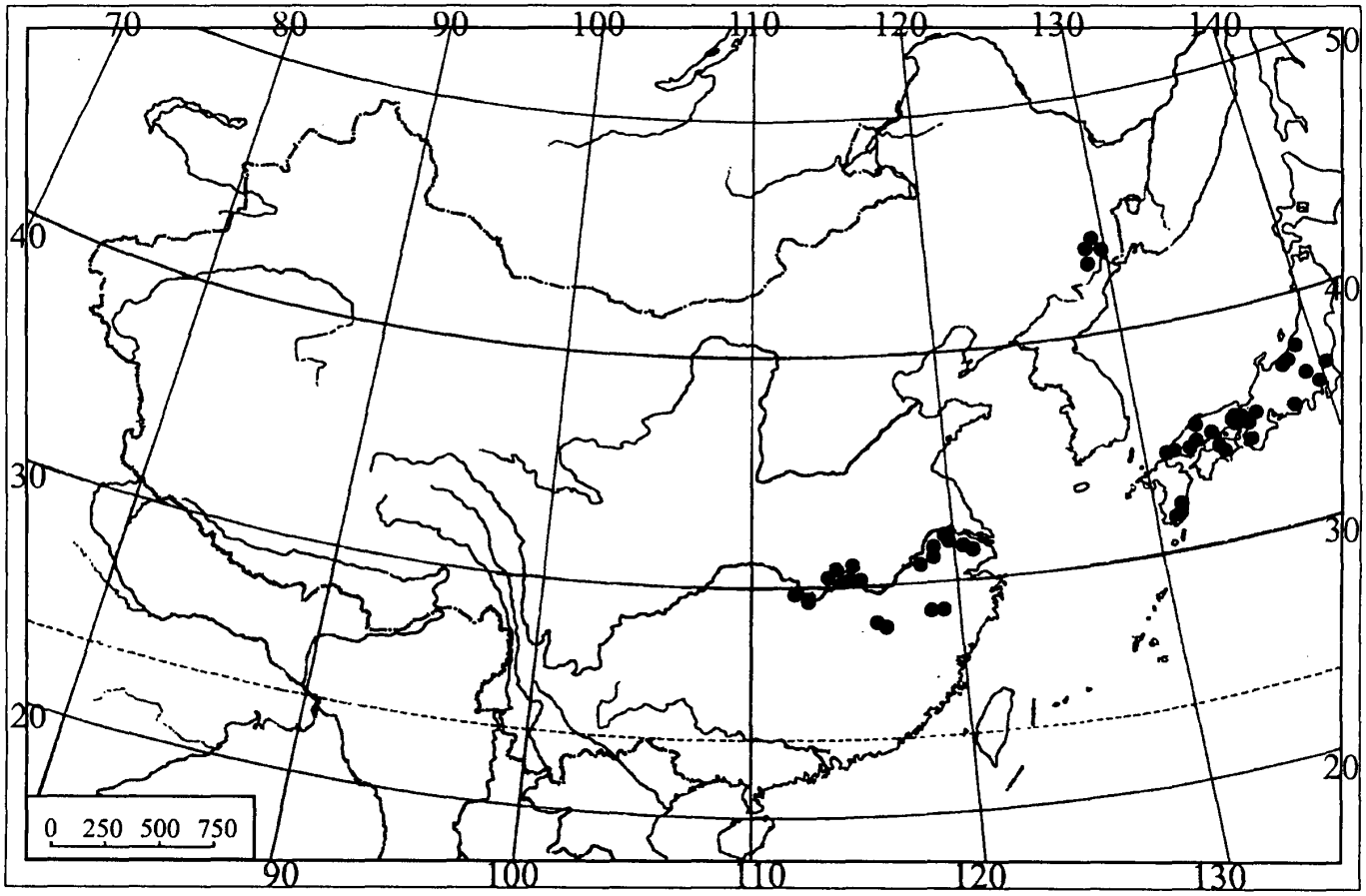

FIG. 2. Distribution of *Myriophyllum oguraense* Miki (dots). (in Japan, after Kadono, 1994)

lenitic habitats ranging from large, deep lakes to medium, shallow ponds, and also sometimes in small ditches and sluggish streams (Fig 1B). Occasionally it is found stranded on damp mud (Fig. 1A), and in such habitat the plants may reach a height of ca. 10 cm. They grow in abundance in suitable habitats, where associates often include *Myriophyllum ussuriense* (Regel) Maxim., *M. spicatum* L., *Utricularia vulgaris* L. and *Limnophila sessiliflora* (Vahl) Blume. The turions are less than 2.5 cm long in early winter, and then reach 3.0- 6.5 cm long. Flowering occurs from May to September, and fruiting from June to October.

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